

AMENDMENTS TO THE CLAIMS

Amended claims follow:

1. (Currently Amended) A multicast packet duplication system for multicast packets containing at least multicast address data, comprising:
an input port configured to receive a packet; and
a plurality of output ports configured to output the packet, wherein:
a number of duplications of the packet for each of the plurality of output ports is controlled by descriptors arranged in a linked-list table indexed by a hashing function applied to said multicast address data;
wherein an encoding format of the descriptors includes at least one of:
a contiguous range encoding that includes a starting indicator and an ending indicator; or
a non-contiguous range encoding that includes a most significant bit (MSB) portion of an indicator and a bitmap decoded from a least significant bit (LSB) portion of the indicator;
and
a discrete encoding that includes a first indicator and a second indicator;
wherein the encoding format is configured to be selected in response to control bits.
2. (Original) The packet duplication system of claim 1, wherein:
each of the number of duplications is coupled to a Virtual Local Area Network (VLAN).
3. (Cancelled)
4. (Original) The packet duplication system of claim 1, wherein:
the descriptors arranged in the linked-list table include at least one shared descriptor.
5. (Original) The packet duplication system of claim 1, further comprising:
a pointer table having a width comprising a plurality of entries coupled to the linked-list table.

6. (Original) The packet duplication system of claim 5, wherein:
each of the plurality of entries corresponds to one of the plurality of output ports.
7. (Previously Presented) The packet duplication system of claim 1, wherein:
the contiguous range encoding includes a starting Virtual Local Area Network (VLAN) indicator and an ending VLAN indicator.
8. (Previously Presented) The packet duplication system of claim 1, wherein:
the non-contiguous range encoding includes a most significant bit (MSB) portion of a Virtual Local Area Network (VLAN) indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator.
9. (Previously Presented) The packet duplication system of claim 1, wherein:
the discrete encoding includes a first Virtual Local Area Network (VLAN) indicator and a second VLAN indicator.
10. (Cancelled)
11. (Currently Amended) A method of controlling a duplication of a multicast packet containing at least multicast address data, comprising:
receiving the packet;
performing a hashing function on said multicast address data;
using the results of said hashing function as an index for a linked-list table;
said linked-list table including a plurality of pointers;
accessing a first multicast descriptor pointer in said linked-list table;
said multicast descriptor pointer pointing to multicast descriptors comprised of at least multicast Virtual Local Area Network (VLAN) pointers;
using at least one of said multicast VLAN pointers to access a multicast VLAN table comprised of second pointers to VLAN pointer descriptors;
accessing a VLAN pointer descriptor in response to the second pointer; and using information contained in said VLAN pointer descriptor to control

applying an encoding for the duplication of the packet;

wherein applying the encoding includes selecting a format of descriptors, the format including at least one of:

a contiguous range encoding that includes a starting indicator and an ending indicator; or

a non-contiguous range encoding that includes a most significant bit (MSB) portion of an indicator and a bitmap decoded from a least significant bit (LSB) portion of the indicator;

and

a discrete encoding that includes a first indicator and a second indicator;

wherein the format of the descriptors is selected in response to control bits.

12. (Canceled)

13. (Cancelled)

14. (Original) The method of controlling the duplication of the packet of claim 11,

wherein:

each of a number of duplications is coupled to a Virtual Local Area Network (VLAN).

15. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:

the VLAN pointer descriptor includes a shared descriptor.

16. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:

the contiguous range encoding includes a starting Virtual Local Area Network (VLAN) indicator and an ending VLAN indicator.

17. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:

the non-contiguous range encoding includes a most significant bit (MSB) portion of a Virtual Local Area Network (VLAN) indicator and a bitmap decoded from a least

significant bit (LSB) portion of the VLAN indicator.

18. (Previously Presented) The method of controlling the duplication of the packet of claim 11, wherein:
the discrete encoding includes a first Virtual Local Area Network (VLAN) indicator and a second VLAN indicator.

19. (Cancelled)

20. (Canceled)

21. (Currently Amended) A multicast packet duplication system for multicast packets containing at least multicast address data, comprising:
an input port configured to receive a packet; and
a plurality of output ports configured to output the packet; said output ports being coupled to one or more Virtual Local Area Networks (VLAN);
wherein said system applies a hashing function to the multicast address data of said multicast packets;
and wherein said system uses said hashing function as an index to a linked-list table; said linked-list table having entries that comprise at least either multicast descriptors or pointers to multicast descriptors;
said multicast descriptors being comprised of at least multicast VLAN descriptors or pointers to multicast VLAN descriptors;
wherein a number of distributions of said multicast packet and an output port distribution of said multicast packet is controlled by information stored in either the multicast descriptors or multicast VLAN descriptors;
wherein an encoding format of said multicast VLAN descriptors include at least one of:
a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator;

a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and

a discrete encoding that includes a first VLAN indicator and a second VLAN indicator;
wherein the encoding format is configured to be selected in response to control bits.

22. (Cancelled)

23. (Previously Presented) The packet duplication system of claim 21, wherein said multicast descriptors also include a multicast packet time to live field.

24. (Previously Presented) The packet duplication system of claim 21, wherein said multicast Virtual Local Area Network (VLAN) descriptors contain a plurality of entries each describing the multicast packet distribution to a different VLAN.

25. (Currently Amended) A multicast packet duplication system for multicast packets containing at least multicast address data, comprising:
an input port configured to receive a packet; and
a plurality of output ports configured to output the packet; said output ports being coupled to one or more Virtual Local Area Networks (VLAN);
wherein said system applies a hashing function to the multicast address data of said multicast packets;
and wherein said system uses the result of said hashing function as an index to a linked-list table;
said linked-list table having entries that comprise either multicast descriptors or pointers to multicast descriptors;
said multicast descriptors being comprised of at least multicast VLAN descriptors or pointers to multicast VLAN descriptors;
wherein a number of distributions of said multicast packet and an output port distribution of said multicast packet is controlled by information stored in either the multicast descriptors or multicast VLAN descriptors;

wherein said multicast VLAN descriptors contain a plurality of entries each describing the multicast packet distribution to a different VLAN; and
wherein an encoding format of said VLAN descriptors include at least one of:
a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator;
a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and
a discrete encoding that includes a first VLAN indicator and a second VLAN indicator;
wherein the encoding format is configured to be selected in response to control bits.

26. (Currently Amended) A method of controlling a duplication of one or more multicast packets containing at least multicast address data, comprising:

receiving the multicast packets;
applying a hashing function to the multicast address data of said multicast packets;
using the result of the hashing function as an index to a linked-list table;
retrieving a multicast descriptor from said linked-list table;
using said multicast descriptor to find the multicast packet time to live data and a Virtual Local Area Network (VLAN) descriptor;
obtaining information regarding how said multicast packets should be distributed to various output ports to at least one VLAN from said VLAN descriptor;
and using this distribution information to distribute said multicast packets to said at least one VLAN;

wherein an encoding format of said VLAN descriptor includes at least one of:
a contiguous range encoding that includes a starting VLAN indicator and an ending VLAN indicator;
a non-contiguous range encoding that includes a most significant bit (MSB) portion of a VLAN indicator and a bitmap decoded from a least significant bit (LSB) portion of the VLAN indicator; and
a discrete encoding that includes a first VLAN indicator and a second VLAN indicator;
wherein the encoding format is configured to be selected in response to control bits.

27. (New) The packet duplication system of claim 1, wherein a first descriptor in the linked-list table includes a first link to a second descriptor in the linked-list table.

28. (New) The packet duplication system of claim 27, wherein the second descriptor in the linked-list table includes a second link to a third descriptor in the linked-list table.

29. (New) The packet duplication system of claim 5, wherein each of the plurality of entries includes a pointer descriptor which includes a plurality of linked-list pointers corresponding to the plurality of output ports.